

METHODS OF MANUFACTURING INTEGRATED CIRCUIT DEVICES THAT
INCLUDE A METAL OXIDE LAYER DISPOSED ON ANOTHER LAYER TO
PROTECT THE OTHER LAYER FROM DIFFUSION OF IMPURITIES AND
INTEGRATED CIRCUIT DEVICES MANUFACTURED USING SAME

Abstract of the Disclosure

Integrated circuit devices are manufactured by exposing at least a portion of an
insulation layer that comprises oxygen to a metal precursor that is reactive with
oxygen so as to form a metal oxide layer on the portion of the insulation layer. The
metal oxide layer may reduce the diffusion of impurities, such as hydrogen, into the
5 insulation layer, which may degrade the electrical characteristics of the insulation
layer.